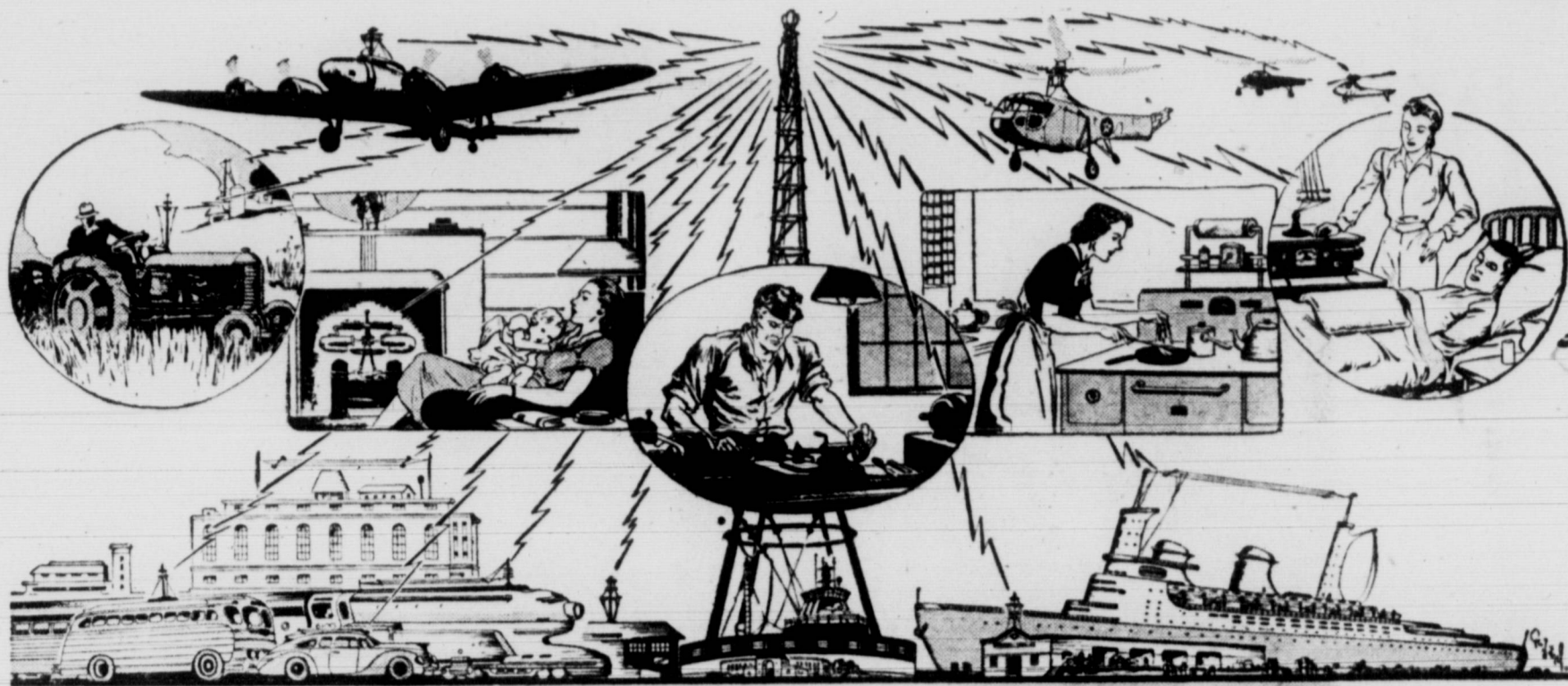


When Scientists Solve the Transmission of Heat and Power by Radio, Housewives Can Cook in the Kitchen, Homes Will Be Heated and Cooled, the Sick Treated, and All Forms of Transportation Will Operate From Radio Waves.



Heat and Power Tomorrow from Radio Waves

OUT of the many new and secret wartime uses for the basic principle of radio may come at last a practical peacetime method of utilizing radio waves for heating and lighting our houses and even supplying electrical energy for factories, buses, automobiles, tractors, airplanes and ocean-going ships.

Radio heating and power transmission have already been accomplished at small scale distances, but the big advance will come when engineers learn how to beam radio waves as they would a searchlight and concentrate the outpouring of radio energy into any given location.

The trouble with ordinary radio now is that its waves spread out in all directions just as a stone cast into a pond generates water waves that flow out in great circles.

With beamed radio, however, it might be possible to create continental radio lanes high in the sky along which the planes of the future could fly, picking up their power as they go.

Giant radio transmitters arranged in two great lanes would send aloft cones of radio energy that would cross invisibly like the beams of some great searchlights. Where these beams intersected would be a region of doubled electric energy, twice as great as either beam provided. While neither supplied enough energy to feed power to the electrical plane, the two beams together—or it might be three or more—might do the trick.

Applications of this beamed radio might also make it possible to transmit power down some of our great highways, so that automobiles and buses, each with its

Medicine Already Uses Radio Heating to Conquer Some of Man's Worst Ills by Creating Artificial Fevers That Destroy the Germs Which Attack the Body.

antenna, could run by electricity plucked from the air instead of from gasoline.

This would be one way to make up for the future shortage of gasoline that will come when our known supplies of petroleum are exhausted.

Entire communities might even invest in public radio utilities which would supply power and heat to the homes of the town just as today's radio supplies them with programs. This energy, taken from space, could be metered at the antenna so that everyone would receive a bill for the amount of power used in the home.

Dr. Ilia E. Mouromsteff, Westinghouse engineer, predicts that after the war ultra shortwave radio will perform many peacetime wonders.

In a report to the Journal of Applied Physics, Dr. Mouromsteff notes that the applications of beamed radio are already producing devices like radar, and that in the postwar world beamed radio energy will do equally astounding things. Dr. Mouromsteff says the chief problem now is the "narrow-casting" of the waves.

John W. Robertson, reporting to Industrial and Engineering Chemistry, calls attention to the little known band of radio frequencies that have wavelengths from one centimeter down to 1/10,000th centimeter.

This band of radio waves is practically a no man's land of scientific research. Mr. Robertson says:

"This practically unknown region may hold the secrets of directed beam propagation of energy. We do know that the shortest waves described before war censorship were characterized by their ability to be directed toward any desired point with much more efficiency and in a more concentrated beam than any longer-wave radio transmission.

"In this region is the transition from radiations known as 'radio' to those with more of the character of what we have termed 'light' waves.

"It is interesting to speculate on what activity these little known radiations may bring forth. Will it be the 'Buck Rogers' disintegrator rays or a real 'death ray'? Will it be a means of stopping tank and aircraft motors, or will it be a method of transmitting large amounts of power between stations without transmission lines, as envisioned by the late Nikola Tesla, who died recently almost on the threshold of seeing that vision come true?

Indeed, when radio power does arrive it will be Nikola Tesla who was its prophet. This eccentric genius lived for many years in a New York City hotel, and before his death at the

age of 85 often predicted that some day man would really take power, in useful quantities, from the air.

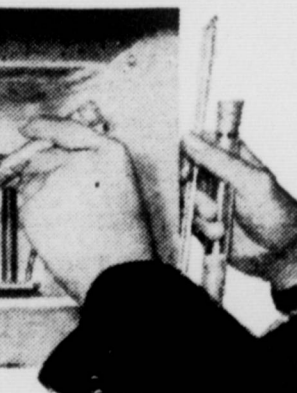
Radio heating has already found many short-range applications in industry and in medicine. Diathermy machines that create artificial fevers to kill disease germs in the body, or warm muscles of strained legs, arms or backs from the inside out, are really shortwave radio transmitters broadcasting between two neighboring metal plates.

In fact, this humanitarian role of radio was discovered by engineers who found they were getting headaches and fevers from being too near their high-powered transmitters. After shielding the scientists from this unwanted effect the experts turned the thing around and came up with the useful medical application.

The ability to heat objects from the inside out finds numerous applications in industry, too. Owners of grain elevators are experimenting with radio waves to kill worms that sometimes infest wheat. Shooting the waves down inside the grain in the elevators kills the bugs, but leaves the wheat unharmed.

Just a short list of radio heat applications would include: Gluing plywood; peeling potatoes; surgery; drying paper, ceramics, textiles and tobacco; curing rubber; pasteurizing milk and beer; cooking and seasoning lumber.

The list could go on indefinitely, but that only skims the surface. The big step will come when radio "utility" companies blanket the land with radio heat and power.



Keystone View Co. Photos

Death Chamber Where Radio Rays Kill Pest-Infected Wheat (Left) in Test Experiments.